



Courtesy of Palm Tran

Project name: Palm Tran Thermal Motor Fan Retrofit

Transit agency: Palm Tran – Palm Beach County

Location: West Palm Beach, Florida

TIGGER goal: Energy and GHG emissions reduction

FTA region number: IV

Award amount: \$320,000

Congressional district: FL-16; FL-19; FL-22; FL-23

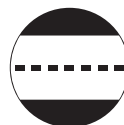
Funding mechanism: Recovery Act (ARRA)

Palm Tran Boosts Bus Efficiency, Reliability with Thermal System Retrofit

Thanks to funding from the TIGGER Program, an inexpensive retrofit is helping Palm Tran's diesel-electric hybrid buses become more reliable and efficient, while also improving the fuel efficiency of conventional diesel buses serving Palm Beach County, the largest in Florida.

The new retrofit addition, a miniHYBRID thermal kit from Engineered Machined Products, is a fully contained system. It replaces the original bus alternator and cooling system with a high output alternator and a cooling package of heat exchangers and eight electronically controlled electric fans. This upgrade includes temperature sensors for the engine charge air and engine jacket water flow paths in order to optimize cooling of those systems separately.

Before this upgrade, some of the newer model diesel-electric hybrid buses were overheating. Palm Tran bought five miniHYBRID systems and tested them in hybrid buses serving the busiest routes with a lot of



Vehicle Project

Palm Tran, Palm Beach County's public transportation agency, provides service to Florida's largest county, with more than one million residents. The transit agency connects Jupiter, Palm Beach, and Boca Raton with a fleet of 146 buses running 35 fixed routes. Palm Tran broke ridership records for its fixed-route service in February 2011, transporting an average of more than 40,000 passengers per weekday for the first time in Palm Tran's history. This increase in ridership is a clear demonstration of the community responding to a transit system that is responsive to its needs. It is also a testament to Palm Tran's ability to more efficiently use available resources to accommodate this growth in ridership.



The miniHYBRID thermal kit includes a high output alternator, heat exchangers, and eight electronically controlled electric fans.

stop-and-go operation. The overheating problem was eliminated, while fuel usage was cut by 10%.

Because of that success, Palm Tran was able to use this TIGGER award to install the thermal motor fan system on 20 of their conventional diesel buses and achieved a documented increase in fuel efficiency of 7.5%.

This project achieved its goal of incorporating commercially available technology into Palm Tran's existing fleet of buses to achieve energy efficiency improvements and greenhouse gas (GHG) emissions reductions.

As demonstrated by this project, the thermal motor fan systems could be used by other transit agencies to retrofit existing transit fleets to achieve fuel savings and reduce greenhouse gas emissions in a cost effective manner.

Impact:

By retrofitting buses with advanced thermal systems, Palm Tran improved fuel efficiency, cut GHG emissions, and boosted reliability in its existing fleet.

About TIGGER

The Transit Investment for Greenhouse Gas and Energy Reduction (TIGGER) Program was established in 2009 by the U.S. Department of Transportation's Federal Transit Administration (FTA). Designed to reduce energy use and greenhouse gas emissions in transit agencies around the country, the TIGGER Program made funds available for capital investments that would reduce greenhouse gas emissions or lower the energy use of public transportation systems. An initial \$100 million in American Recovery and Reinvestment Act grants funded 43 competitively-selected transit projects. In 2010, the FTA provided an additional \$75 million in grants to fund 27 new TIGGER projects. These 70 projects are employing a variety of technologies to meet the program goals, including solar installations, building efficiency improvements, wind technology, wayside energy storage for rail, and purchase of more efficient buses. In fiscal year 2011, FTA provided an additional \$49.9 million to continue the program.

For More Information

Palm Tran:

[www.pbcgov.com/
palmtran/](http://www.pbcgov.com/palmtran/)

FTA TIGGER:

www.fta.dot.gov/TIGGER



U.S. Department of Transportation
Federal Transit Administration
1-866-377-8642

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